What is claimed is:

1. A polymer electrolyte fuel cell comprising:

a housing provided with an anode-side supply inlet for supplying a material for fuel;

an anode and a cathode accommodated in the housing to sandwich a polymer electrolyte membrane; and

a layer containing a biochemical catalyst which decomposes the material for fuel to generate fuel, the layer being formed between the anode-side supply inlet and the anode.

2. A fuel cell according to claim 1 further comprising an anode-side collector and a cathode-side collector which sandwich the anode and the cathode therebetween, wherein the anode-side collector also serves as the layer containing the biochemical catalyst.

3. A polymer electrolyte fuel cell comprising:

a housing provided with an anode-side supply inlet for supplying a material for fuel, the anode-side supply inlet being connected to a supply section for supplying the material for fuel;

an anode and a cathode accommodated in the housing to sandwich a polymer electrolyte membrane; and

a filter containing a layer containing a biochemical catalyst which decomposes the material for fuel to generate fuel, the filter being formed in the supply section.

4. A fuel cell according to claim 1 or 3, wherein the biochemical catalyst comprises one or more selected from hydrogen-generative anaerobic bacteria, hydrogen-generative yeasts and hydrogen-generative enzymes.

5. A fuel cell according to claim 1 or 3, wherein the biochemical catalyst comprises a combination of Clostridium butyricum and formate-hydrogen lyase.

6. A fuel cell according to claim 1 or 3, wherein the material for fuel is selected from oxygen-containing hydrocarbons such as alcohols, polysaccharides, aldehydes, ketones and carboxylic acids..

7. A fuel cell according to claim 1 or 3, wherein the material for fuel is in the form of an aqueous solution.

2520462